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Threaded plate

The invention relates to a threaded plate according to the precharacterizing clause of claim 1.

It is known to use threaded plates in vehicle body construction in order, for example, to fix door hinges or closing brackets thereon. However, after some time settling phenomena may occur which are caused, for example, by the threaded plates only being supported in a spotwise manner, and, in the case of vehicle doors, may lead to undesirable noises or an unfavorable closing behavior. The threaded plate is usually fitted and subsequently a conventional catalytic dip-coating is carried out, which is used to apply a first coating layer which protects against corrosion and forms a key. One reason for the spotwise support may be what are referred to as buds which may lead to settling phenomena if the installed threaded plate sticks to a bearing surface. If, however, the threaded plate is only fitted in a later assembly process step after the dip-coating of the vehicle body parts, this makes its fitting more difficult and, in addition to additional holders, also requires an additional outlay on personnel.

The invention is based on the object of providing a threaded plate in which the planar support of a planar basic body is improved and which can be processed in a production-friendly manner.

The object is achieved according to the invention by the features of claim 1.

The threaded plate according to the invention comprises a planar basic body which has at least one spacer

element protruding at an angle. The spacer element is provided for bearing against a bearing surface. When installed, it can prevent the threaded plate from sticking during a conventional catalytic dip-coating of a vehicle body, since the planar basic body can be kept at a defined distance from a bearing surface. The planar basic body comes into the bearing position when a component is screwed to the threaded plate and the planar basic body is drawn by its supporting region onto the bearing surface by a screw being tightened. In the process, the spacer element, which protrudes at an angle, is forced into a flatly aligned position. The distance between threaded plate and bearing surface is overcome, and the threaded plate bears with the planar basic body against the bearing surface. This essentially avoids settling phenomena occurring later. A manufacturing, for example of B-pillars of a vehicle body, on which door hinges and/or lock strikers are to be fixed by means of threaded plates, is improved. The threaded plate can be installed in a production-friendly manner before a dip-coating step. The installation of the threaded plate is simplified, and a saving on costs by omitting additional holders is possible.

If the spacer element is arranged in the edge region of the planar basic body, it can be used similarly to a holder. This facilitates the assembly of the threaded plate. The spacer element can advantageously be integral with the threaded plate and can be formed during production of the threaded plate.

If the spacer element is connected to the planar basic body by a predetermined buckling point, a bending movement is facilitated. Less force is required in order to change the angular position of the spacer element. The supporting surface of the planar basic

body remains essentially level and can later form a planar contact with a bearing surface. Tightening a screw is likewise facilitated by a relatively small force opposing a bending of the spacer element back into a flat position.

If the predetermined buckling point is to have a smaller material thickness than the planar basic body, it can be produced at reasonable cost by a simple notching or stamping operation.

If the spacer element protrudes from the planar basic body at a flat angle, a sufficient distance of the planar basic body from a bearing surface is ensured. At the same time, the supporting region of the planar basic body of the threaded plate is still essentially level, so that the threaded plate protrudes at a sufficient distance from the bearing surface to prevent bonds, and the installation of the threaded plate is not obstructed. The spacer element is preferably angled in the direction of the side which lies opposite the threaded sleeve. However, depending on the intended use, it is also conceivable for the spacer element to be angled in the same direction as the threaded sleeve.

If the spacer element is designed as a yoke with two webs and a cross strut connecting the webs, it can be used during installation for better adjustment and handling. Furthermore, the predetermined buckling point can be arranged in the webs, with the result that the latter can easily be angled in one direction and can be bent back again in the opposite direction. The spacer element can optionally also be designed as an angled tab which is arranged in the bearing surface of the planar basic body.

The cross strut preferably forms a contact surface. The

cross strut initially bears with an edge against the bearing surface. The distance made possible as a result between planar basic body and bearing surface prevents the threaded plate from sticking during dip-coating.

If the planar basic body has two opposite spacer elements between which the threaded sleeve is arranged, a symmetrical arrangement can be created. The threaded plate then only rests against a bearing surface on the spacer elements or in each case one of the edges thereof.

If the planar basic body has two or more threaded sleeves, a single threaded plate can be used to arrange a plurality of screw points on a vehicle body. The planar basic body thereby has a relatively large area and can be protected particularly favorably by the spacer element against sticking during the dip-coating operation. The threaded sleeves are preferably arranged between two opposite spacer elements. A threaded plate which is compact and can easily be handled and, during installation, permits a defined distance between the planar basic body and the bearing surface is therefore provided.

The principle can also be used in an analogous manner in the case of other types of fixing.

Favorable refinements and advantages of the invention can be gathered from the description and the further claims.

The invention is explained in more detail below with reference to an exemplary embodiment which is described in the drawing, in which:

Fig. 1 shows, diagrammatically, a B-pillar with installed threaded plate and door hinge,

Fig. 2 shows a cut-out of a preferred threaded plate with a predetermined buckling point, and

Fig. 3 shows a further preferred threaded plate with two threaded sleeves.

Fig. 1 shows, diagrammatically, the function of a threaded plate 1 according to the invention in a B-pillar 10 of a vehicle body on which, for example, a hinge of a vehicle door or a lock striker for a vehicle door is to be fixed.

The threaded plate 1 comprises a threaded sleeve 3 protruding from an essentially level supporting region 25 of a planar basic body 2, the planar basic body 2 having, on both sides of the threaded sleeve 3, a respective spacer element 4 protruding at an angle to one side. The spacer element 4 protrudes from the planar basic body 2 at a flat angle of less than 20° and thus ensures that the planar basic body 2 is at a distance from a bearing surface of the B-pillar 10. The threaded sleeve 3 protrudes to the side of the threaded plate 1 which is opposite the angled spacer element 4. A reinforcement 12 is provided within the B-pillar 10. The threaded plate 1 can be connected moveably to a carrying plate 11. At the location of installation of the threaded plate 1, the B-pillar has a bearing surface 23 for the threaded plate 1 with a suitable opening 24 through which a screw 15 can be screwed into the threaded sleeve 3. A fitting 13 which has a corresponding bore 14 is provided outside the B-pillar 10. The screw 15 is guided through the bore 14 and the opening 24 into the threaded sleeve 3 and is screwed down. When the screw 15 is tightened, the planar basic

body 2 is drawn onto the bearing surface 23, and the spacer elements 4 are pressed flat. The planar basic body 2 then bears extensively with its supporting region 25 against the bearing surface 23, and the spacer elements 4 lie in a plane with the planar basic body 2.

Fig. 2 shows a cut-out of a preferred threaded plate 1. A spacer element 4 is arranged on an edge of a planar basic body 2 and is connected to a supporting region 25 of the planar basic body 2 via a predetermined buckling point 5. The predetermined buckling point 5 has a smaller material thickness than the planar basic body 2. The spacer element 4 is designed as a yoke which is integrally formed on the supporting region 25 and has two webs 21, 22 and a cross strut 20 connecting the webs 21, 22. An edge 6 of the cross strut 20 forms a contact surface for the threaded plate 1 on a bearing surface. A distance 7 is formed between a bearing surface and a rear side of the planar basic body 2.

Fig. 3 shows a further preferred threaded plate 1. In this case, a planar basic body 2 has two opposite spacer elements 4 between which two threaded sleeves 3 are arranged. The spacer elements 4 and the two threaded sleeves 3 are arranged along a longitudinal extent 8 of the threaded plate 1. A supporting region 25 of the planar basic body 2 is constricted in its width between the two threaded sleeves 3. Weight can therefore be saved. Furthermore, access for a welding gun is possible at the constriction. The spacer elements 4 are designed as yokes and are connected to a supporting region 25 of the planar basic body 2 via predetermined buckling points 5.